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Effect of Deer Browsing on a Young Jack Pine Plantation in Northern Lower Michigan

Surveys and general observations on deer browsing of jack pine in various parts of the Lake States have shown that damage has been widespread and severe in some areas. An example is a jack pine plantation near Curtisville in Alcona County, Lower Michigan, which has been under observation for 10 years.

This plantation of 64 acres was established in 1947 with 1,020 2-0 jack pine per acre. Excessive browsing by deer caused a loss of more than half of the seedlings and as a result the area was replanted in 1949. In that year a deer enclosure (40x40 feet) was established within the plantation. The young pine inside the enclosure and on a comparable unfenced plot were measured in 1949, 1951, 1954, and 1958.

Within a mile of the plantation are three browsed-out deer yards. The estimated deer population in the study area was 40 deer per square mile in 1940 and about 50 per square mile in 1950. The estimate for the years 1954 to 1957 was 20 to 30 per square mile, and in 1958 it was 30 to 50.

The results of the 10-year study show a loss of only one of the protected trees, whereas more than half of the trees subjected to deer browsing were killed (table 1). The fenced trees also grew more than twice as much in height. Inside the enclosure 22 of the 25 trees were classed as crop-quality trees. In contrast only 1 of the 7 unprotected trees was of crop quality; the rest were either multiple-stemmed or badly deformed by deer browsing.

Table 1.--Survival and average height of trees
inside and outside deer enclosure

Year	Surviving trees		Average tree height in feet	
	Protected	Unprotected	Protected	Unprotected
1949	26	16	0.7	0.6
1951	26	11	1.9	.9
1954	26	10	5.1	3.4
1958	25	7	9.3	4.5

(over)

These results show that excessive deer populations are capable of killing many young planted jack pine up to the age of 10 years, retarding total height growth to one-half of its potential, and deforming most of the trees so that they have little future value for timber products.

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July 1960 //